

WHAT IS CLAIMED IS

1. A battery-operated lighting device for use with any
one of a plurality of rechargeable battery packs, each
5 pack having a pair of terminals and a different operating
voltage, said lighting device comprising a casing having
first and second parts, a lighting unit including a light
bulb provided at the first casing part, said light bulb
having an optimum operating voltage, a battery chamber
10 formed at the second casing part for receiving at least
part of and locating said any one battery pack, a pair of
electrical contacts located in the chamber for making
electrical connection with respective terminals of said
battery pack located by the chamber, and an electronic
15 voltage regulating circuit provided within the casing and
having an input and an output in electrical connection
with the contacts and the light bulb respectively, said
circuit being arranged to regulate the voltage of said
battery pack down to substantially the optimum operating
20 voltage of the light bulb for operating the light bulb.

2. The battery-operated lighting device as claimed in
claim 1, wherein the chamber has an opening through which
said part of the battery pack is insertable into the
25 chamber, said opening having a periphery of a shape and
size substantially the same as that of an adjacent
periphery of said part of the battery pack for matching
therewith when said battery pack is located by the

chamber.

3. The battery-operated lighting device as claimed in claim 2, wherein the outer surface of the casing forming the chamber is arranged to lie substantially flush with that of said battery pack when said battery pack is located by the chamber.

10 4. The battery-operated lighting device as claimed in claim 1, wherein the casing has a lower end that forms the chamber, said chamber having a bottom opening through which said part of the battery pack is insertable into the chamber, with the rest of said battery pack acting as a weighted base for the overall torch light.

15 5. The battery-operated lighting device as claimed in claim 4, wherein the casing has an upper end that supports the lighting unit and includes a middle section between the upper and lower ends that is shaped to form an upright
20 handgrip.

6. The battery-operated lighting device as claimed in claim 1, wherein the voltage regulating circuit is implemented based on an integrated circuit chip to provide
25 a substantially constant output voltage that is the optimum operating voltage of the light bulb, irrespective of an input voltage falling within a predetermined range.

7. The battery-operated lighting device as claimed in claim 6, wherein the voltage regulating circuit includes a feedback loop connected from the output back to the integrated circuit chip, which loop is arranged to provide
5 a signal indicative of the level of the output voltage to enable the chip to maintain the output voltage at a substantially constant level.

8. The battery-operated lighting device as claimed in
10 claim 6, wherein the predetermined range of input voltage is substantially from 9.6V to 18.0V DC.

9. The battery-operated lighting device as claimed in claim 8, wherein the operating voltages of said battery
15 packs are substantially 9.6V, 12.0V, 13.2V, 14.4V, 15.6V, 16.8V and 18.0V.

10. The battery-operated lighting device as claimed in claim 1, wherein the optimum operating voltage of the
20 light bulb is substantially 9.3V DC.